

SCHEME AND BEYOND: WORKING TOWARDS A COMPREHENSIVE COASTAL AND MARINE CLASSIFICATION SYSTEM

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INTRODUCTION

An ecosystem-based approach to management and conservation of terrestrial ecosystems has been in place for several years. However, this approach is less well established for coastal and marine ecosystems. This is, at least partially, due to the lack of a single standard classification system for these habitats. In Florida, several agencies are tasked with producing thematic benthic habitat maps. This has led to the use of more than fifteen different classification systems over the past 25 years. These experiences further highlight the need for a consistent and accommodating classification system for coastal and marine habitats. In 1998, the Florida Marine Research Institute, now known as the Florida Fish and Wildlife Research Institute (FWRI), with funding from the Environmental Protection Agency's Gulf of Mexico Program, began to develop the System for Classification of Habitats in Estuarine and Marine Environments (SCHEME). SCHEME's objective was to produce a standardized system for classification of the marine and estuarine benthic habitats of Florida and throughout the Gulf of Mexico. The intent was to create a system that would provide a common language to describe, consistently inventory and report on Florida's coastal and marine habitats. After a thorough review of existing classification systems and input from resource managers, research scientists and mapping experts a working document was completed in 2002, and has since been actively used in Florida.

BACKGROUND

The current SCHEME classification system is hierarchical with a single upper Class level followed by four Subclass levels. The Class level describes the general dominant life form or physiography and composition of the substrate, which can be applied without the addition of detailed field measurements. This level was intentionally developed to easily crosswalk to both the Cowardin and the Coastal and Marine Ecological Classification Standard (CMECS) classification systems. The four Subclass levels are further enhanced by two Modifier labels, which include a General Modifier list (e.g., artificial reef) and a Taxonomic Modifier list (e.g., *Acropora palmata*). The greatest utility of SCHEME is that it is a dynamic hierarchical system designed to accommodate data over several different spatial scales and new habitat mapping technologies.

Advances in high spatial and spectral resolution optical sensors as well as the more active usage of acoustic sensors in the coastal zone has led to an even greater need for a standardized classification system with the ability to integrate different sensor platforms. Integrating standardized data from the water column with the underlying benthic habitats is also an area of interest. Parameters include the physical properties (e.g., salinity), optical properties (e.g., light attenuation) and biological components (e.g., chlorophyll). SCHEME, as a dynamic classification system, allows for the direct input of these data. SCHEME is currently undergoing review to directly include a suite of different datasets, including: in situ monitoring, spectral (e.g., reflectance values), active optical (e.g., lidar) and acoustic (e.g., multibeam) data classes. The same process of classification system review and expert input will be used during this phase of development in order to produce the next iteration of SCHEME. This presentation serves to introduce and solicit input for the utility of the system.

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